

Appendix J

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FPC-DE REACTOR VALVE CONTROL
SEP PROPOSAL

One of the purposes of the Clean Air Act is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." 42 U.S.C. § 7401(b)(1). As described herein, FPC-DE's proposed Reactor Valve Control projects aid this purpose by reducing the likelihood of accidental vinyl chloride monomer ("VCM") releases at the facility and thereby enhancing the protection of air resources. The proposed projects achieve this reduction by replacing manually controlled valves used during the PVC polymerization process with computer controlled, automated valves, reducing the likelihood of releases caused by human error.

Accidental releases of the raw materials used in a manufacturing process may occur due to mechanical and system failures and human error. Over the past ten years, there have been twenty incidents at the FPC-DE facility during which an accidental release of VCM exceeded the applicable one pound reportable quantity ("RQ"). Of these twenty incidents, FPC-DE has determined that 35% were related to reactor valve incidents and would have been prevented by installation of the proposed projects, including two incidents which exceeded 500 pounds. FPC-DE estimates that based upon an average of 2 reactor valve incidents per year, the average annual reduction of VCM released by preventing such incidents will be 100 pounds.

[REDACTED]

Based on the data available, FPC-DE estimates that, by implementing the proposed projects, the average annual reduction of VCM released associated with high area concentration incidents will be 0.25 pounds.

[REDACTED]

Based on the data available, the estimated average annual reduction of VCM released associated with low area concentration incidents will be 0.054 pounds.

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The proposed projects will reduce VCM releases and area concentration incidents by installing automated control valves for the reactors and other equipment in the facilities' two plants, S2 and E2. These automated valves will allow the charge, venting and drop operations of the vinyl chloride polymerization process to be controlled via a computer rather than manually. Computer programming and remote operation will permit these valves to be opened only when the reactor is in a condition to accept VCM charging, batch venting or batch dropping without risk of release to the atmosphere. Accordingly, these modifications will remove some of the potential for human error during the operations, reducing the likelihood of accidental releases.

As part of the proposed projects, FPC-DE will install automated charge valves capable of restricting vapor flow from a reactor into the charge lines. Such valves will prevent VCM vapor from entering and fouling the charge lines, which requires the lines to be opened and cleaned. VCM line opening contributes to VCM fugitive emissions, and the decreased necessity to do so will reduce VCM emissions. In addition, the modifications proposed for the E2 plant will reduce the number of valves in VCM service and thereby further reduce annual fugitive VCM emissions by an estimated 9 pounds.

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Project #1: E2 Reactor Valve Control Installation

Project Overview:

For this Supplemental Environmental Project, FPC-DE shall automate certain process controls for E2 reactor valves in order to provide an added layer of protection against unintended VCM releases. The E2 Reactor project will minimize the manual operation of valves to and from the E2 reactors, thereby reducing the risk of human error and VCM releases.

[REDACTED]

Project Description:

[REDACTED]

[REDACTED]

[REDACTED]

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As described above, even with certain computer controlled interlocks in place, the manual operation of reactor equipment presents the opportunity for valves to be opened at the wrong time, or in an improper sequence, which may release VCM into the environment. Such manual operation also presents the risk that valves will not be completely closed by an operator. Furthermore, when valves are operated out of sequence or opened at the wrong time, there is a risk that VCM vapor from the reactor will enter the VCM charge header or the charge header for other ingredients, resulting in the risk of VCM release to the environment. Additionally, this condition can contribute to fouling the charge lines and result in a VCM release to the environment due to maintenance and line opening.

FPC DE anticipates that the design, construction and implementation of this proposed project will take twenty-four months to finish. The facility does not anticipate requiring any permits for the completion of this project, but should any be required, the project's completion date may be affected.

Scope of Work:

- [REDACTED]

[illegible]

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Capital Costs:

Based upon an engineering review of the plant's current process system and operation, the following cost has been estimated to install the proposed project as described above [REDACTED]

[REDACTED] No significant annual operating increases or cost savings are expected.

Equipment: [REDACTED]

Labor: [REDACTED]

Engineering: [REDACTED]

Total: [REDACTED]

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Project #2: S2 Reactor Valve Control Installation

Project Overview:

For this Supplemental Environmental Project, FPC DE shall automate certain process controls for S2 reactor valves in order to provide an added layer of protection against unintended VCM releases. The S2 Reactor project will minimize the manual operation of valves to and from the S2 reactors, thereby reducing the risk of human error and VCM releases.

[REDACTED]

Project Description:

[REDACTED]

The manual operation of a portion of the S2 plant's reactor valves presents the opportunity for valves to be opened at the wrong time, or in an improper sequence, releasing VCM into the environment. Such manual operation also presents the risk that valves will not be completely closed by an operator and that the reactor's automated sequence will continue, releasing VCM. Furthermore, when valves are operated out of sequence or opened at the wrong time, there is a risk that VCM vapor from the reactor will enter the VCM charge header or the charge header for other ingredients, resulting in the risk of VCM release to the environment. This condition can also contribute to fouling the charge lines and resulting in the risk of VCM release to the environment due to maintenance and line opening.

[REDACTED]

[REDACTED]

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FPC DE anticipates that the design, construction and implementation of this proposed project will take twenty-four months to finish. The facility does not anticipate requiring any permits for the completion of this project, but should any be required, the project's completion date may be affected.

Scope of Work:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

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Capital Costs:

Based upon an engineering review of the plant's current process system and operation, the following cost has been estimated to install the proposed project as described above [REDACTED]

[REDACTED] significant annual operating increases or cost savings are expected.

Equipment: [REDACTED]

Labor: [REDACTED]

Engineering: [REDACTED]

Total: [REDACTED]

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Anticipated timeline for completion of E2 and S2 Reactor Valve Control Projects

<u>MILESTONES</u>	<u>Milestone Time</u>	<u>Project Time</u>
Milestone I		4 Months
P&ID Design:	4 Months	
Milestone II		8 Months
Equipment Purchasing:	4 Months	
Milestone III		20 Months
Piping & Instrumentation Installation:	8 Months	
Milestone IV		24 Months
Implementation (including testing, S.O.P. revision, and training):	4 Months	